

## Friction-Sensing Reflector Array Patches (FRAP), Phase II

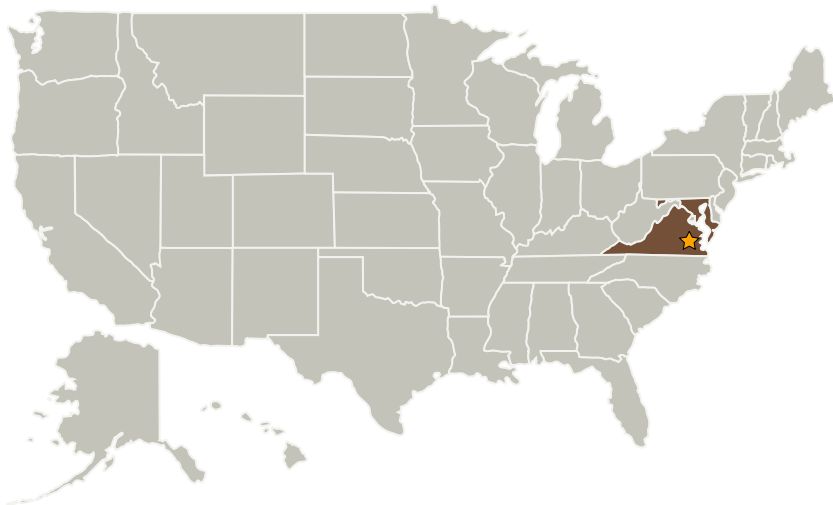
Completed Technology Project (2009 - 2011)



## Project Introduction

Research Support Instruments, Inc. (RSI) proposes to develop the Friction-Sensing Reflector Array Patches (FRAP), a technology that will measure the shear stress distribution on aerodynamic surfaces in ground test facilities with high resolution, sensitivity, and bandwidth. Unlike the oil-film interference method, FRAP patches will not be thinned as a function of time during a test. No knowledge of the streamlines of the flow will be needed in order to calculate the local stress distribution; this will avoid the tracers needed with the oil-film interference approach. Flexible patches of FRAP arrays, inexpensive due to simple, mass-production-compatible microfabrication techniques, will be interrogated using a light source and camera. FRAP will be independent of the flow species and applied as a very thin, flexible, adhesive material. The Phase II goals will be to improve the design and fabrication of the sensors, fully calibrate taking into account competing effects such as normal forces and temperature, demonstrate feasibility in a wide range of test environments from subsonic to heated and cold supersonic, and provide prototype units to NASA. The result will be a product that will address a critical NASA instrumentation need.

## Primary U.S. Work Locations and Key Partners



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## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Transitions	2
Project Management	2
Technology Areas	2

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Langley Research Center (LaRC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Research Support Instruments, Inc.	Supporting Organization	Industry	Lanham, Maryland

Primary U.S. Work Locations	
Maryland	Virginia

## Project Transitions

**February 2009:** Project Start**February 2011:** Closed out

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - └ TX12.1 Materials
    - └ TX12.1.3 Flexible Material Systems